REMARKS

In view of the herein contained remarks, Applicants respectfully request reconsideration and withdrawal of the outstanding rejection together with an indication of the allowability of all the claims pending in the present application. Such action is respectfully requested and is now believed to be appropriate and proper.

Applicants note with appreciation the Examiner's indication that claims 4 and 9 would be allowable if rewritten in independent form.

In the outstanding Official Action, the Examiner rejected claims 1, 3, 5-6, 8 and 10-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,991,717 to MINDE et al. in view of U.S. Patent No. 5,963,896 to OZAWA. Applicants respectfully traverse the above rejection and submit that it is inappropriate in view of the herein contained remarks.

Applicants wish to thank Examiner Armstrong for her outstanding courtesy and cooperation exhibited during an interview conducted on July 1, 2004.

During the above-noted interview, Applicants representative discussed the features of the present invention and the advantages thereof with respect to the prior art. Moreover, Applicants representative discussed the references cited by the Examiner and pointed out the shortcomings thereof with respect to the features of the present invention.

In particular, the features of the second codebook and the gain controller were discussed and the Examiner indicated that the combination of these features appeared to distinguish over the prior art. However, the Examiner did indicate that she needed to further discuss the claims with the Primary Examiner.

More specifically, it was discussed at the interview how the present invention includes controller that controls a gain according to distance between pulses of the excitation vector. In particular, the gain calculating section controls a gain for respective excitation vectors in the first subcodebook (61a, 62a) and the second subcodebook (61b, 62b) according to distance between pulses of the excitation vectors in the first subcodebook (61a, 62a). Features related to this aspect of the present invention are recited by independent claims 1, 6, 11, 13, and 17.

In particular, during the above-noted interview it noted that this component of gain was an additional gain that was distinct from the prior art gains as noted below (See, for example, as set forth on page 17, lines 6-12 of the specification). More specifically, claim 1, for example only, recites a gain obtainer that obtains gain information. Claim 1 further recites a controller that controls a gain for respective excitation vectors corresponding to a distance between pulses of the excitation vectors.

A different aspect of the present disclosed invention includes an excitation switching instruction section that selects one of the first subcodebook (91a, 92a) and the second subcodebook (91a, 92b) corresponding to distance between pulses

of the excitation vectors in the first subcodebook (91a, 92a). Features related to this aspect of the present invention are recited by independent claims 5, 10, 15, 18, and 20.

As discussed in the interview, both MINDE et al. and OZAWA et al. fail to disclose a controller that controls a gain or a switching instruction section that selects a codebook to provide an additional gain. Moreover, neither MINDE et al. nor OZAWA et al. disclose a first and second codebook as recited by the claims.

In particular, MINDE relates to a speech coding device using gains g_m and g_t which have no relation to the distance between the pulses of the excitation vectors. MINDE discloses a Multi-pulse excitation (MPE) generator 34 and Transformed Binary Pulse Excitation (TBPE) generator 36 instead of the claimed stochastic codebooks. That is, MINDE et al. does not disclose or suggest the use of two subcodebooks, namely a first subcodebook storing excitation vectors with a small number of pulses and a second subcodebook storing excitation vectors with a large number of pulses, a controller that controls a gain for respective excitation vectors in at least one of the first subcodebook and the second subcodebook corresponding to a distance between pulses of excitation vectors in the first subcodebook as recited in the combination of claims 1, 6, 11, 13, and 17. Similarly, OZAWA does not disclose or suggest the above-noted feature of the present invention, in the claimed combination.

The Examiner asserts in the Official Action that OZAWA discloses that the positions of the amplitude pulses are retrieved with a different gain for each group

of pulses less in number than the total number of pulses M. However, in contrast to the present invention, the portion of OZAWA that discloses the above feature relates to pulse amplitude quantization after multipulse positions are determined and achieves pulse amplitude quantization using an amplitude codebook as explicitly set forth at column 19, lines 32-36.

In this regard, the gain for the excitation vectors according to the present invention, and the gain for amplitude quantization according to OZAWA are entirely different. The present claimed invention is not directed to an amplitude codebook, in direct contrast to OZAWA. Nor does the present invention relate to controlling the amplitude of each pulse separately. Thus, OZAWA and the present invention, as recited by the claims, are clearly distinct from each other.

The present invention is directed to controlling the gain based on a distance between the pulses of excitations vectors in a subcodebook. Neither OZAWA nor MINDE et al. disclose at least this claimed feature.

OZAWA merely discloses making a voiced/unvoiced judgment and switching gain codebooks with reference to mode data. By contrast, the present invention involves, inter alia, selecting the subcodebooks according to the distance between the pulses of the excitation vectors in the first codebook with a small number of pulses as recited by claims 5, 10, 15, 18, and 20.

The present invention is directed to switching the subcodebooks based on a "distance" between the pulses of the excitation vectors. By contrast, OZAWA discloses analyzing the pitch gain of a perceptual-weighted input signal and

switching modes. Moreover, neither OZAWA nor MINDE et al. discloses or suggests switching subcodebooks based on a distance between pulses of excitation vectors.

With respect to the Examiner's rejection of dependent claim 3, 8, 12, 14, 16, and 19 under 35 U.S.C. § 103(a), Applicants submit that these claims are dependent from one of independent claims 1, 5, 6, 10, 11, 13, 15, 17, 18, and 20, which are allowable, at least as discussed supra. Further, Applicants submit that claims 3, 8, 12, 14, 16, and 19 recite additional features that further define the present invention over the prior art.

In view of the fact that none of the art of record, whether considered alone or in any proper combination, discloses or suggests the present invention as defined by the pending claims, and in further view of the above remarks, reconsideration of the Examiner's action and allowance of the present application are respectfully requested and are believed to be appropriate.

Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so.

Should the Examiner have any questions or comments regarding this Response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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